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13 October 1961

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MEMORANDUM FOR: Deputy Director (Intelligence)

SUBJECT: Semi-Annual Report to the Killian Committee

Pursuant to your request, the subject paper in two copies is forwarded herewith.

ARTHUR C. LUNDAHL

Director

National Photographic Interpretation Center

Distribution:

- Cy 1 - DD/I (w/2 copies of report)
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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER
1 April 1961 thru 30 September 1961

1. ORGANIZATION AND MISSION

Through the work of a joint ad hoc planning board an organizational structure for NPIC for the implementation of NSCID No. 8 was established in early June. An organization chart is enclosed (next page). In brief the photographic analysis work is accomplished by joint teams drawn from the four detachments on an "as required" basis. Supporting services are provided by a permanent framework which is manned primarily by CIA personnel, with the military services represented primarily in the Deputy Director's position, the Operations Board and the Technical Plans and Development Staff. Appropriate procedures have been developed for the processing of materials and projects on a completely joint basis, including joint participation in establishing priorities, assigning project personnel and reviewing completed substantive projects.

Current working strengths in the Steuart Building are: Army - 57; Navy - 7; Air Force - 10; and CIA [] The figures for Army and CIA include personnel who work on departmental projects when not required on NPIC work. The Air Force and Navy are working to increase their permanently assigned personnel; they have met current requirements by temporary duty assignments from their own service resources outside the Steuart Building. NPIC personnel objectives, exclusive of military, call for on-duty totals of [] by 1 July 1962 and [] by 1 July 1963.

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So far the NPIC has been able to discharge without serious difficulty its primary NSCID No. 8 responsibilities of initial rapid readout for the entire intelligence community. Although several

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missions occurred close together this summer, the initial reports and indices were prepared on a timely basis and with a noticeable increase in speed with experience. It now appears that the initial readout of priority targets for a single KH mission can be made within two to three days after arrival of the film at NPIC. Complete mission coverage indices (frame by frame) require ten days to three weeks. For detailed reports on individual subjects the NPIC has been able to handle only the most important target areas, leaving the balance for departmental study. From intelligence community interest and activities during the past six months it is believed that the formation of the NPIC has eliminated a great amount of potential duplication in the analysis and handling of TALENT-KEYHOLE material.

Coincident with the preparation of specific reports there has been a growing significant workload of supporting activities for other agencies. This has involved detailed briefings for groups such as GMAIC, the "Hyland" Panel, and Project [redacted] and administrative support in the form of printing and transmission within the T-KH system of special projects of others, such as NIE's.

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2. TALENT Materials

a. Cuba. During the reporting period, twenty TALENT missions were flown over Cuba, fifteen during April and the balance at approximately one month intervals. Basic statistical data:

	<u>Average Mission</u>	<u>All Missions</u>
Film footage	5,688 ft.	113,759 ft.
Area covered	31,964 sq. NM	639,281 sq. NM

General over-all quality of the photography obtained on these missions was good, with an approximate ground resolution of 2.5 feet.

Prior to the Cuban operation, NPIC personnel were sent to the field to establish a field photographic interpretation capability for rapid readout. Fourteen tactical mission readouts were accomplished in the field. At NPIC, supplementary readout was accomplished by joint teams. Since April, joint readouts of each

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mission have been executed at NPIC. Forty-six reports have been produced on Cuban missions during the period 1 April 1961 - 30 September 1961. The main intelligence contributions from the Cuban flights have been: initial damage assessment to Cuban airfields and aircraft; detection of Soviet-type jet fighter aircraft; and an indication of the scale of military build-up throughout the island as observed from aircraft counts, trenches and weapon installations, and other activity indicators.

b. South East Asia. In answer to joint community requirements in South East Asia, one TALENT mission was accomplished over portions of North Vietnam and peripheral South China in July. This mission covered an area of approximately 100,000 square nautical miles with good quality photography, although it was very heavily cloud-covered.

In order to provide the rapid reporting and to serve theater needs for this mission the stand-by Far East theater facility was activated, personnel from NPIC, the theater Navy, Army and Air Force provided, and the initial reporting was accomplished and disseminated from there. Few significant changes in major targets were observed from information already obtained during earlier missions of January 1961; however continued activity was noted at a number of installations. The initial film delivered to the U.S. was turned over to the Army at their request for detailed study, with NPIC readout scheduled for early October.

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3. KEYHOLE Materials

a. Quantitative Aspects. Four missions were flown during the period, summarized as follows:

<u>Mission</u>	<u>Date</u>	<u>Linear NM Coverage</u>	<u>Square NM Coverage</u>	<u>Film Footage</u>
9017	17,18,19 Jun 61	18,874	3,774,620	6,500
9019	8,9 Jul 61	20,341	5,919,209	5,400
9023	30,31 Aug, 1 Sep	18,486	2,073,860	6,800
9022	12,13,14 Sep 61	24,104	4,165,045	7,100
<u>Total</u>		81,805	16,932,734*	25,800

*Includes duplicate coverage

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The above figures are for plottable coverage only and do not take into account cloud cover or poor quality. Cloud cover continues to be a serious problem. From all six KEYHOLE missions to date (the four above and two in 1960) 4,175,519 square nautical miles or 57% of the Soviet Union has been "seen" with cloud cover less than 25% on KEYHOLE photography of varying degrees of photographic quality.

b. Qualitative Aspects. The PI quality of photography obtained from the KEYHOLE effort ranges from poor to good, although these qualitative terms are relative and are difficult to define absolutely. Factors such as altitude and attitude of the vehicle, light conditions, weather, and lens-emulsion combination greatly influence the final product.

Mission 9009 (August 1960), the first productive KH mission, showed that resolution and emulsion grain size were major degrading factors affecting photo interpretation. Ground objects under 35 feet could not be identified or measured under magnification. Missions 9013 (December 1960), 9017 (June 1961), and 9019 (July 1961) used the same camera system as 9009 but a different film emulsion. As a result, ground objects of about 25 feet could be identified and measured.

Missions 9022 (September 1961) and 9023 (August 1961) utilized a different camera system than previous missions, coupled with a very fine grained film emulsion. Although there were some areas of poor quality, considerable improvement was noticed in over-all quality and ground objects of about 10-15 feet could be identified and measured on the best portions of the mission.

In summation, PI quality has consistently improved throughout the KEYHOLE effort.

c. Significant Intelligence Items. The four missions have had a major impact in the strategic intelligence field, primarily in the fields of weapons deployment and nuclear energy. Among the more important items discovered or developed are the following:

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4. RESEARCH AND DEVELOPMENT

A small Technical Plans and Development Staff was formed during the period to work exclusively in the field of research and development and related procurement actions, with a view to continuing to improve exploitation equipment capabilities not only at NFIC but throughout the intelligence community. Work is closely coordinated with the military services to permit pooling of information and

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know-how and to take advantage of decreased costs made possible through quantity procurement. Approximately 55 contracts totaling [] are in varying stages of execution. Items involving major development or procurement actions during the period include the following: electronic photographic rectifiers, stereo comparators, 40X precision enlargers, an image quality meter, greatly improved screen projection viewers, and improvements in Minicard equipment.

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